R E P O R T R E S U M E S

ED 019 578 AC 002 141

OTSEGO COUNTY EXPERIMENTAL PROGRAM FOR TESTING METHODS OF FORMING FARM MANAGEMENT STUDY GROUPS, A PROGRESS REPORT. EXTENSION STUDY, NUMBER 8.

BY- LONGEST, JAMES W. GENGENBACK, WILLIAM H.
STATE UNIV. OF N.Y., ITHACA
STATE UNIV. OF N.Y., ITHACA

PUB DATE FEB 65

EDRS PRICE MF-$0.50 HC-$3.40 83P.

DESCRIPTORS- *ADULT FARMER EDUCATION, *FARM MANAGEMENT, *GROUPING (INSTRUCTIONAL PURPOSES), *RURAL EXTENSION, SOCIOMETRIC TECHNIQUES, RESEARCH, ATTENDANCE, INTERPERSONAL RELATIONSHIP, HOMOGENEOUS GROUPING, DAIRYMEN, ADULT DROPOUTS, SOCIALIZATION, STATISTICAL DATA,

THE MOST FREQUENT METHOD OF GROUP FORMATION FOR INTENSIVE FARM MANAGEMENT PROGRAMS IN NEW YORK STATE HAS BEEN TO COMBINE ALL INTERESTED FARMERS IN LARGE GROUPS AT THE COUNTY EXTENSION HEADQUARTERS. THIS EXPERIMENT WAS SET UP TO STUDY THE EFFECTIVENESS OF TWO METHODS OF FORMING SMALL GROUPS--BY SOCIOMETRIC CHOICE OR SIMILAR CHARACTERISTICS. ALL OTHER FACTORS, INCLUDING THE PROGRAM, WERE CONTROLLED. FOR THREE FACTORS THE TWO AREAS CHOSEN WERE NOT WELL MATCHED--MILK PER COW, GROSS FARM INCOME, AND SOCIAL PARTICIPATION. MEETINGS COVERED SUCH FARM MANAGEMENT PROBLEMS AS RECORD KEEPING, MACHINERY COST CONTROL, BUDGETING, FORAGE PRODUCTION, AND CROPPING ROTATION PLANS. THE OPERATORS IN THE SOCIOMETRIC GROUPS ATTENDED MEETINGS MUCH BETTER THAN THOSE IN EITHER THE SIMILAR CHARACTERISTICS GROUPS OR THE COUNTY GROUP. THERE WAS NO DIFFERENCE IN NUMBER OF REQUESTS FOR ASSISTANCE FROM THE AGENT. SOCIOMETRIC GROUPS APPEARED TO BE THE MORE EFFECTIVE WAY OF ORGANIZING GROUPS THAN THE SIMILAR CHARACTERISTICS GROUPS BECAUSE (1) THE SOCIAL ORGANIZATION WAS COMPATIBLE WITH OBJECTIVES AND TASKS TO BE ACHIEVED AND (2) THE GROUP ORGANIZATION WAS COMPATIBLE WITH AND INTEGRATED INTO THE EXISTING SOCIAL STRUCTURE. (PT)

EXTENSION STUDY NUMBER EIGHT

8

ED019578

Otsego County Experimental Program for Testing Methods of Forming Farm Management Study Groups

by

James W. Longest

and

William H. Gengenbach

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

A PROGRESS REPORT

Extension Study Number Eight

A Progress Report

OTSEGO COUNTY EXPERIMENTAL PROGRAM FOR TESTING METHODS OF FORMING FARM MANAGEMENT STUDY GROUPS

by

James W. Longest
Associate Professor of Extension Studies
and Rural Sociology

and

William H. Gengenbach
Associate County Agent
Otsego County

Office of Extension Studies, New York Extension Service
State Colleges of Agriculture and Home Economics, Contract Colleges
Of the State University at Cornell University, Ithaca, New York
February, 1965

ACKNOWLEDGEMENTS

The authors are indebted to many individuals for their assistance and encouragement. Arthur Durfee, Associate Director of Extension; Howard Matott, Associate State Leader of Agricultural agents; W. Dale Brown, County Agricultural Agent; and Earl Feinman, Associate County Agricultural Agent, have assisted with the farm management program design, execution, support and administration. Particular recognition is extended to former Associate County Agricultural Agent, David T. Smith, who recruited the families, initiated the experimental program, conducted the first year's study groups, counseled with families during the first year, and prepared materials for the second year's meetings. Professors C. Arthur Bratton, Robert S. Smith, Clifton W. Loomis, Bernard F. Stanton and Randolph Barker of the Department of Agricultural Economics have contributed to farm management lesson units, to farm record processing and summarizing, and to training in farm management of the professional staff involved in the project. Professors Samuel T. Slack, Robert W. Spalding, and J. Bruce Stone of the Animal Husbandry Department have contributed program materials in the field of dairy herd management and feeding. Professor Frank D. Alexander has advised on the design and execution of the project. The clerical staff of the Office of Extension Studies has efficiently processed the data involved. Many others have made helpful contributions.

TABLE OF CONTENTS

	Page
Introduction	1
Conclusions and Implications	4
Objectives and Design	12
Objectives	12
Design	12
Initiation of the Experiment	16
Areas Selected	16
Recruiting Farm Families for the Management Program	16
Formation of Groups	17
Obtaining Benchmark Data	20
Comparison of Benchmark Averages on Selected Variables	21
Summary and Implications	29

	Page
Program Objectives, Subject Matter and Activities for the First Three Years	31
Recruitment, Fall, 1961	31
Program Objectives, Subject Matter and Activities for the First Year, 1962	32
Summary	35
Change in Program Agent	36
Program Objectives, Subject Matter and Activities for the Second Year, 1963	37
Summary	41
Program Objectives, Subject Matter and Activities for the Third Year, 1964	41
Summary	44
Response to Program	45
Attendance at Meetings	45
Program Dropouts	49
Failure to Meet Program Expectations	49
Number of Requests Made for Assistance	50
Analysis of Differences in Response to Program	51
Appendix A	67
Appendix B	70

OTSEGO COUNTY EXPERIMENTAL PROGRAM FOR TESTING METHODS OF FORMING FARM MANAGEMENT STUDY GROUPS

A Progress Report

Introduction

Counties in New York State have met with varying degrees of success in recruiting farm families for the intensive farm management program initiated in 1954-55. Participants have varied greatly in their attendance at meetings and in the amount of time and activity devoted to the program.[1] The recruiting methods commonly used have been news articles, letters with return cards, checking farm management as an item of interest on membership cards, and personal recommendation of the agent or of another participant.

The most frequent method of group formation has been to combine all farmers expressing interest in any one year into a group which would meet at the county Extension headquarters or to combine all interested operators in subareas (typically several townships) of the county into groups which would meet in subarea centers. One agent began forming small groups within township areas. These groups usually met in the homes of the

---

[1] Charles O. Crawford and Olaf F. Larson, Use of Small Groups in the Farm and Home Management Program New York State Cooperative Extension Service, Part 1 Characteristics of the Groups and Group Meetings, Department of Rural Sociology Mimeo. Bulletin No. 57, N.Y.S. Coll. of Agric., a Unit of State University, at Cornell University, Ithaca, N.Y., August, 1961, pp. 27-32.

members. This pattern evolved from his working initially and primarily on the basis of intensive individual counseling and then experimenting with combinations of individuals for certain types of teaching as an attempt to better utilize his limited time resource. When some groupings were effective and others not, he asked the Extension Studies Office to help find out why this occurred. By so doing he hoped to form groups which would function effectively.[1] After discussion with the agent, the sociometric technique was suggested as a method of analyzing why one group was effective and the other was not. On the basis of the agent's judgment and a limited study of his experience,[2] the sociometric technique appeared to offer a more effective method for forming study groups of farmers than had been used in the past. With some refinement of the method it has been used subsequently by agents in other counties where there was an interest in improving recruitment and participation in the farm management program. The interviews for recruiting families and obtaining information for the sociometric formation of study groups have typically recruited from 60 to 65 percent of

---

1 Ralph Hadlock, "The Discovery and Use of Small Groups in the Farm and Home Management Program: Part I, Background Information" Summary of Training Conference for Extension Workers on Group Methods in Farm and Home Management, November, 10-11, 1959, a publication of the Dept. of Rural Sociology, N.Y.S. Coll. of Agric., a unit of the State University at Cornell University, Ithaca, N. Y. pp. 20-21 and 29-32.

2 James W. Longest, Frank D. Alexander, and Jean Harshaw, Sociometric Formation and Effectiveness of Groups in a Farm Management Program, Extension Study No. 2, Office of Extension Studies Cornell University, Ithaca, N.Y., July, 1962.

the commercial farmers in a township or community area. Thus, the number recruited from one township has usually surpassed the number formerly recruited from the whole county in any one year. Sociometrically formed groups have usually had attendance records ranging from 60 to 100 percent.

The problem of how to form groups or what type to form has had very little systematic evaluation in Extension programs. The present experiment was established to test the effectiveness of two different methods for forming groups under otherwise comparable circumstances. Only under relatively controlled and observed testing can we hope to give some answer to the effectiveness of different methods.

This is only one of many experiments that could be made for testing the effectiveness of different ways of forming groups and for varying their structures according to the functions and end products expected of them. This experiment considers groups formed for conducting an intensive educational program for three to four years. It does not directly answer questions about whether either method would be effective or practical in other types of programs, for example, for home demonstration units or 4-H clubs. However, it is hoped that results from this experiment will provide findings which will allow us to raise questions and formulate hypotheses about the applicability of these and other types of groups for use in other educational endeavors.

The sections which follow describe the experiment and the results as measured during the first two to three years.

Conclusions and Implications

Because program results are affected by conditions under which the teaching is done as well as the methods used to teach the subject matter, it is logical that some attempt should be made to measure results obtained under different conditions. This experiment focuses upon the effect of forming small groups in two different ways for teaching farm management to farm families. The design of the experiment calls for controlling all other factors, including program taught, so that everything is the same in the two experimental areas except for the way the groups were formed.

The farms and the operators in the two areas are well matched on a large number of factors in the benchmark year of 1962. For three factors they are not well matched. One area has operators with herds producing more milk per cow, and thus higher gross income per farm as well as higher social participation scores. The herds are producing more milk in the one area than in the other because more of the herds in that area are either on DHIC or owner sampler programs. In both areas herds on such programs as opposed to those not on them produce more milk per cow. The difference between the two areas in proportion of farms on test programs is not associated with the difference in social participation but is associated with the difference in quality of DHIC and owner sampler supervisors who are working in these areas. Supervisors who are able to be teachers as well as testers apparently obtain a larger proportion

of the farmers in a given area as their clients. These quality supervisors were also able to help their clients obtain herd averages which on the whole surpassed the average of the possibly more select herds tested by the supervisor rated as fair.

From the point of view of the research, the major exception to a good match of areas is milk produced per cow and this difference was apparently caused by the historical difference in quality of DHIC and owner sampler program supervisors. In future matching of dairy areas consideration should be given to matching quality and quantity of programs conducted by other agencies such as DHIC, as well as Extension membership and participation.

In this project conclusions concerning changes in milk production per cow and in incomes attributable to such production differences will have to be interpreted with full recognition given to this difference which existed when the experiment was started.

Program lesson units were carefully prepared and revised several times for each year's meetings. In preparing lesson units, consideration was given to methods of teaching to assure that the objectives would be attained. Each year has included teaching farm business analysis by analysis of farm records. In addition the lesson units taught in the three years were designed to teach the application of farm management principles in such subjects as machinery cost control, effective use of

farm credit, how to plan and budget adjustments in the farm business, forage production importance in the feeding program, and the development of a cropping rotation plan. The principles of diminishing returns, marginal returns and their importance in increasing profits were among the important economic principles presented.

The operators in the sociometric groups attended meetings much better than did those operators in either the similar characteristics groups or the county group. Voluntary program dropouts for the three years was 22 percent in the sociometric groups, but reached 29 percent in the similar characteristics groups.

There was no difference in number of requests for assistance from the agent. It was estimated that 75 percent of the requests were made of the agent when he was visiting farms on scheduled visits. Farmers in neither type of group tend to call or write the agent for assistance in spite of the fact that they have been encouraged to do so. This refutes any argument that an intensive educational program can be conducted on the basis of the clients' asking for the assistance they need. The response in this program indicates that for most farmers such requests must be stimulated by or suggested by the agent.

In this analysis the hypothesis that the way the groups were formed explains the differences in response to the program is the only one the data and analysis supports. This raises the question of why sociometric groups appear to be the more effective way of organizing for teaching farm management than does the

formation of similar characteristics groups. This is really asking for the theory behind the hypothesis that the sociometric groups would be more effective than the similar characteristics groups. This theory and the principles involved will now be discussed. There are really two principles involved in stating the basic theory behind the effectiveness of the sociometric groups. These principles are as follows: (1) social organization compatible with the objectives and tasks to be achieved is the first step in initiating an educational or development program and (2) the social organization established should also be compatible with and usually should be integrated into the existing social structure of the people to be involved.[1]

The sociometric groups observed both of the principles involved in this theory for effectiveness of social organization. The groups were small making them effective for teaching complex subject matter, such as farm management. Small groups were also desirable from the point of view of the type of activity in which the participants were to be involved, namely, the analysis of their farm business in which they related the principles given by the agent to their particular farm business. This type of analysis often requires that they be able to ask questions of the agent and discuss anything not clear to them.

---

[1] This would mean that it may be necessary to have different "social organization" established to reach different social classes or subcultures with the same educational material. Adaptations may also have to be made in materials and methods of instructions in order to reach the same or comparable objectives with different subcultures.

All members of the group should be able to do this without unduly lengthening the time taken for the analysis. Therefore, the sociometric groups met the first principle which requires that the social organization of the group be compatible with the objectives and tasks to be achieved by the group. The sociometric groups met the second principle which is that the social organization established should also be compatible with and usually should be integrated into the existing social structure of the people to be involved. Since the sociometric groups were formed on the basis of the choices of participants for others with particular emphasis being placed on mutual choices, the social organization of the sociometric groups was based upon the current social structure[1] that existed between the members in the community. Therefore, the sociometric groups integrated the structure utilized in farm management into the already existing structure of the persons in the community.

The similar characteristics groups met part of the criteria set forth in the first principle. The similar characteristics groups were also small and therefore on this basis allowed for interaction between the participants and also between participants and the agent without unduly delaying the process. However, the social organization of the similar characteristics groups did not necessarily put people together who would choose to be together

---

[1] Structure as used here refers to the informal interactions between people which over time become patterned and tend to be habitual and repetitive. When this happens it is becoming a structure of social interaction patterns.

and thus feel comfortable in discussion of farm management. The second principle that the social organization of the program group should be compatible with and usually integrated into the existing social structure of the people involved is not fulfilled by the similar characteristics groups. This has been clearly revealed in this analysis. The persons in the similar characteristics groups, with but few exceptions, are not placed with people with whom they would chose to be and with whom they normally interact in the community when discussing farming. The social structure of the similar characteristics groups is in opposition to, or at least not integrated into, the existing social structure of the area in which they were formed.

The sociometric groups were formed in a manner which was compatible with the existing social structure while the similar characteristics groups were formed in a manner which disregarded and ran in opposition to the existing social structure of the area. These differences in social structure of the groups definitely affected attendance at meetings.

Also of interest, is the question of how the typical county wide type farm management group meets or violates the criteria set forth in the two principles above. County groups typically ignore most of the existing social structure of the areas in the county. One would also have to note that typically they do not usually really establish a new social structure in establishing the farm management group. They ask that participants

attend and participate in meetings which are functioning outside their local social organizational structure. Under these circumstances it is typical, and no surprise, that those who attend most are those who are high formal participators in the county and are thus accustomed to operating in a gesellschaft type social situation. In some instances, they may also be the ones who least need the educational programs. The exceptions to this generalization can probably be explained by one or two other possibilities which are: (1) that they happen to have a good friend who is also a member of the group and is attending meetings, or (2) they have a very close personal relationship with the program teacher, or feel that this is true, and therefore attend because of the relationship with the program teacher rather than with the group. These latter two reasons for attending are "acceptable" ones but are limited in the number and proportion of the total county population that can be reached if these are what the program teacher is primarily basing his recruitment and program organization upon.

It should not be concluded from the above discussion that for all types of programs and to reach all types of audiences that the authors are suggesting that sociometric groups be formed. To suggest this would be a violation of the theory and principles

just stated.[1]

For example, for some educational programs the clientel or audience may be only the formal organizational and governmental leadership including the behind-the-scenes influentials. In such a case, the educational program may proceed more on an individual by individual approach rather than on a group approach, or may proceed on the basis of approaching relevant interest groups as well as individuals. Such an approach as this is giving full recognition to the existing social organization, as one of our principles states we should. These principles are still valid even if in the long run the decision might be to establish organizational structure which runs counter to existing vested interests and social organization.

Objectives and Design

Objectives

The major objective is to test the effect of two different types of group formation on attendance, participation, and changes in knowledge and practices. A closely allied objective is to record the observations of behavior which occur in sociometrically formed groups. Other objectives are: (1) developing teaching materials and methods for instruction and counseling on farm management and (2) a comparison of the results obtained when small groups are formed by the sociometric method and the similar characteristics method with the results obtained when a county-wide group is formed of those operators who indicate interest in any one year.

Design

The experimental design with before and after tests of participants was adopted for testing the hypothesis that the sociometric groups would be the more effective of the two types of groups. The independent variable,[1] type of group, is, in this

---

[1] Winfred F. Hill, Learning: A Survey of Psychological Interpretations, Chandler Publishing Company, San Francisco, California, p. 21

"An independent variable that we can manipulate gives us some degree of control over the dependent variable. This fact is the meaning of the saying that 'knowledge is power.' Only if we have a law about the conditions under which certain kinds of events happen can we set up the necessary conditions for one such event to happen when we want it to. It is not necessary for the law to be formally stated -- much of our practical knowledge is very casual. However, the more complete and accurate our formulation of the laws is, the better able we are to control the world around us."

case, defined and established by the experimenters. The dependent variables are such factors as attendance at meetings, participation in the program, changes in knowledge and farm practices, and farm expense, production, net worth and income variables. The design specifies that all situational conditions and treatment be as identical as possible for both types of groups; the ideal being that all other factors and conditions shall be equal except for the way the groups were formed. (Chart 1)

There were some limiting conditions placed upon the rigidity with which the experiment could be conducted. These were: (1) that the conduct of the program be such that we could realistically expect that other agents could repeat the performance and (2) that where experimental design and good educational procedure might conflict, good educational procedure would take precedence, but every effort would be made to maximize the requirements of the experimental design. For example, ideally each farmer should receive equal treatment from the program agent. Thus, it was required that identical lesson units be given to each group. However, if analysis of a specific farmer's business revealed a weakness in feeding dairy cows and the agent helped him program a solution, it was not required that he do this with all farmers in all groups, but only with those operators who were similarly weak in feeding dairy cows. The equal treatment for individual counseling is equal treatment in both areas in the sense that the agent helped them to determine their farm weaknesses through farm record business analysis and then

worked with them to plan corrections. Then with the areas matched on number of farms and farm weaknesses, the areas, and therefore type of group, will receive equal treatment.

CHART 1 DESIGN OF OTSEGO GROUP FORMATION EXPERIMENT

Areas matched	Flow chart of tasks or activities					
	Program explained to each family and two types of groups formed	Pretest participants on knowledge and practices to be taught	Conduct farm management program for 3 to 4 years	Post-test as at benchmark plus other relevant data	Calculate gain or loss for each individual	Test average difference in change
Area I	Sociometric groups	X	X	X	X	X
Area II	Similar characteristics groups	X	X	X	X	
Area III	Control area (no groups formed at this time)			X		
	Purpose of tasks or activities					
Equal conditions under which treatment is given and hopefully matched farms. Control area to be matched on same year's census data variables as were areas I and II	1. Recruit families and obtain data necessary for group formation 2. Form two types of groups to establish the independent variable 3. Nothing done in control area	1. Establish benchmark from which to measure change or influence of program 2. Can also be used to determine program content needed by most participants 3. Nothing done in control area	1. Assure equal treatment to each group 2. Focus participants attention on program, leaving effect of independent variable free of bias that might occur if participants were aware of it 3. Nothing done in control area	1. Terminal data with benchmark provides measure of change 2. Control farmers tested to answer how different are the farm management participants from farmers not exposed to program 3. Control area will answer whether group formation results can be repeated	1. Provides basic change data to use in calculating difference in change	
	Explanations					
Areas matched on: (1) No. of farms (2) No. of cows per farm (3) Soils (4) No. of members of Agr. Ext. Dept.	Independent variable is type of group. Program explained and data for group formation obtained in personal interviews.		Keep a record of what is taught and how it is taught	Groups formed in control areas by Sociometric technique and farmers are tested on practices, etc.		

Initiation of the Experiment

Areas Selected

In the summer of 1961 the Extension Studies Specialist and Otsego county agents selected two areas matched on types of soil, number of farms, cows per farm, and number of operators who were members of Agricultural Extension.[1] On this basis, the towns of Butternuts and Morris in the southwestern corner of the county were matched with the towns of Burlington and Exeter in the northwestern section of the county.

Recruiting Farm Families for the Management Program

For each of the towns a list of the farmers who had 20 or more cows was made from the tuberculosis tests listing of farms. This list was checked with informed individuals in each of the towns to obtain any recent changes. A letter was sent to each person on the list explaining that the farm management program was to be started in their community, and that the agent would call on them at their home to explain the program, complete a brief questionnaire, and answer any questions they might have.

When the agent called at a farm, he explained the program, and how groups were to be formed and then, unless the family refused, he completed a survey questionnaire. The last question on the survey form was a request for them to rate their degree of interest in participating in the program. The operators in the towns of Butternuts and Morris were interviewed first. There

---

[1] This matching was done from 1960 census data, a county soil map and county Extension membership records.

were 77 explanations of the program, and 49 operators expressed interest in the program. Burlington and Exeter operators were visited next. Results of these visits were somewhat short of the 77 explanations and 49 interested operators obtained in Butternuts and Morris. It was considered important to start with approximately the same total number of farms for each of the two types of groups to be formed. In order to attain this goal a small part of the Town of Plainfield was selected as an area in which contacts were continued until 48 interested operators were obtained. Seventy-eight explanations were required to recruit this number. Although in total it was only necessary to explain the program to one more person in the second area to obtain 48 interested operators, there was considerable variation from town to town.[1] Of operators contacted the percentages interested were 52 and 69 percent for the two sociometric towns, and 53 and 73 percent for the two similar characteristics towns. Such factors as quality of farms, age, education, and social-economic status of the operators and community attitudes about using technology in farming probably account for the variation from town to town.

Formation of Groups

It was decided by a coin toss that Butternuts and Morris Towns would have the groups formed by the sociometric technique. Groups in Burlington and Exeter Towns were, therefore, to be formed by combining farms with similar numbers of cows and crop

---

[1] See appendix A, exhibit 1 for results by towns.

acres and with operators of about the same age and educational background. The assumption underlying the application of the sociometric method for formation of study groups of farmers is that operators will choose other operators with whom they enjoy associating. This leads to a relaxed atmosphere in which participants feel free to talk with one another and the agent. It is also hypothesized that they select people whom they respect and with whom they normally interact[1] and, therefore, interaction between meetings throughout the year allows for more discussion of subject matter and principles presented by the program agent than might occur if groups were formed in other ways.[2]

A sociometric group is one formed by combining persons on the basis of their choices for one another. Because there are different ways in which groups might be formed by sociometric type data, and each would lead to considerably different group composions, a brief description of the New York system is warranted. The method first identifies the "core" units, generally of three to five persons. A core unit has each member related to all others by reciprocal choices. Typically, more such core units are identified than are needed for the number of groups to be formed. The few core units to be used are those with the higher total scores for choices with all potential

---

1 Those readers acquainted with reference group theory will recognize this as a method of identifying reference groups.

2 For further discussion of the formation and functioning of sociometric groups see: James W. Longest's, "Group Formation for Teaching," Journal of Cooperative Extension, Vol. II, No. 3, 1964, pp. 143-151.

participants, and secondly, on the basis of no duplication of members with other core units to be used. Additional members are then added to these selected core units according to which core unit their choices and core member choices for them score highest. In scoring, mutual choices are weighted more than one-way choices.[1]

The other method of grouping farms was by similar characteristics. The characteristics used were number of cows and crop acres per farm and age and education of the operators. This brought together farmers with similar farm situations and with approximately the same number of years of experience and formal education. For example, there is a "young farmers" group with similar educational achievement and farm size. There is a "large farmers" group and a "small farmers" group, in which operators have similar educations and are about the same age. Another group is composed of lower middle-aged farmers with about the same education and farm size. The theory of this method is that persons with these factors similar would have much in common, and would, therefore, have meaningful interaction with one another and the agent.

Seven sociometric and six similar characteristics groups were formed. These groups are small in size. The sociometric groups have from five to nine members with an average of 7.0 and the similar characteristics groups from six to nine members with

---

[1] This method will be described in a bulletin to be published in the near future.

an average of 7.6.

Obtaining Benchmark Data

Benchmark data was obtained at five different times during the first year of the program. Some of the data, such as age and education of the operators, were obtained in the initial recruitment interview. The participants were tested on subject matter which it was anticipated would be taught during the first year at the first meeting of each group in the early part of 1962. The benchmark data on hay harvest practices were collected in the summer of 1962. Data on other farm practices, social and personality characteristics, and attitudes of the farm operators were obtained in the fall of 1962. Farm business records data were obtained in January, 1963 on the 1962 calendar and business year.

Comparison of Benchmark Averages on Selected Variables

The two areas, as indicated above, were initially matched on the soils of the areas, number of farms, number of cows per farm, and number of members of Agricultural Extension. Test of the differences for the operators in the benchmark year of 1962

Table 1

Differences in Characteristics of Operators in the Two Areas (1962 averages)

Personal & social characteristics of operators	Sociometric groups area (N=33)	Similar characteristics groups area (N=33)	Significance or nonsignificance of difference*
Age	38	41	NS
Education	**	**	NS** (.20)
Social participation score	31	21	S @ .01
Extension participation	3.7	4.2	NS (.17)
Personality flexibility	22	23	NS
Social status	9	7	NS (.10)
Record keeping:			
Keep cash account book or equivalent	**	**	NS
Keep a farm inventory	**	**	NS

* All tests on difference in averages are the t tests as given by Helen Walker and Joseph Lev, Statistical Inference, Holt, Rinehart and Winston, New York, pp. 155-57. Probability levels are given on NS tests only where they approach a signifance level worth noting even though they do not qualify for significance at .05.

** Chi square used to test difference in distributions of operator's education in the two areas. Appendix B gives the distributions for education, keeping cash account book and farm inventory.

confirms a match was obtained on number of cows per farm and participation in Extension Service.(Table 1)

In addition to the initial match on a few variables, it was deemed necessary to test for differences in other major farm and operator characteristics in order to either confirm or deny that matching on the few variables did actually match the two areas. The operators of the two areas had similar major characteristics (age, education, Extension participation, personality flexibility, social status, and record keeping). Social participation of the operators in the two areas was significantly different. The difference is in the direction of higher social participation for operators in the sociometric groups area. (Table 1)

None of the variables for size of farm operation are significant. The small differences that do exist were caused by the sociometric groups area farms being slightly larger.(Table 2)

Rates of production were measured by crop production per acre and pounds of milk sold per cow. Crop production per acre was very similar, but the sociometric groups average for pounds of milk sold per cow was higher causing a significant difference on this variable. (Table 2)

Labor efficiency was measured by cows per man and milk per man. The differences for these two measures of labor efficiency were not significant. However, since milk per cow is considerably higher for the sociometric groups farms, while man equivalent

Table 2

Differences in Farm Business Variables in the Two Areas
(1962 Averages)

Farm Business Variables	Sociometric Groups (N=33)	Similar Characteristics Groups (N=33)	Significance or nonsignificance of difference*
Size of farm:			
Number of cows/farm	36	35	NS
Man equivalent	1.69	1.65	NS
Machine inventory	10,300	8,600	NS (.13)
Average farm inventory	46,300	41,800	NS
Crop acres	84	73	NS (.12)
Hay acres	62	54	NS (.15)
Rates of production:			
Milk sold/cow	10,400	8,900	S @ .01
Hay produced/acre	1.6	1.5	NS
Labor efficiency:			
Cows per man	21	21	NS
Milk per man	225,000	190,000	NS (.06)
Cost control:			
Percent feed costs are of milk receipts	35	33	NS
Machinery cost/cow	110	100	NS
Machinery cost/crop acre	48	47	NS
Machinery cost/hundred weight milk	1.09	1.18	NS
Receipts:			
Work off farm as % of total cash receipts	1.9	1.6	NS
Milk Sales as % of total cash receipts	85	84	NS
Farm receipts	20,600	17,000	S @ .05
Labor income/operator	2,200	1,600	NS
Price of milk/hundred weight	4.29	4.27	NS

and number of cows per farm are essentially the same, it is not surprising that milk per man is somewhat greater for the sociometric groups. (Table 2)

The operations in the two areas are very similar on cost control variables. None of the differences were statistically significant. Machinery cost per cow is somewhat higher for the sociometric groups, but machinery cost per hundred weight of milk is a few cents lower due to the higher average milk production per cow. More was spent for purchased feed per cow in the area with the higher production per cow (cost of feed per cow in the high producing area was $157 and in the other area $131). However the percent purchased feed costs is of milk receipts is essentially the same for the farms in the two areas. This indicates that the increased production was not achieved at any greater cost per unit in one area compared to the costs per unit in the other. Gross farm receipts is significantly different because of higher receipts in the sociometric area. Labor income per operator is also higher for the sociometric groups area, but the difference is not statistically significant. As is indicated in Table 2 the income from work off farm as percent of total receipts and price of milk per hundred weight is the same for both areas and, therefore, does not account for the difference in gross receipts. The combination of slightly larger farms and much higher production per cow for the sociometric area are the factors which account for the significant difference in gross farm receipts. However, labor income per

operator is not significantly different, primarily because most costs per unit of production are similar except percent feed costs are of milk receipts is slightly higher for the sociometric area. This difference although slight, probably accounts for the smaller difference in labor income per operator compared to the large difference in farm receipts.

From the foregoing data it can be concluded that the operators in the two areas are well matched on all factors except for social participation, milk production per cow and gross income. The difference in production per cow is evidently related to a better job of feeding cows. As noted above, the amount of grain fed per cow is greater in the area with the higher production per cow; and the percent feed costs are of milk receipts indicates the additional grain is economically utilized in producing more milk per cow.

If one asks why the farmers in the sociometric groups area are apparently doing a better job of feeding cows, but are not managing better in other respects, an obvious possibility is that more of the farmers in the high producing area are on a milk testing and feeding program such as DHIC or owner sampler. Twenty-three of the 33, or 67 percent, of the operators in the high producing area are testing compared to only 12 of the 33, or 36 percent, of the operators in the low producing area. Those on test in each area have higher production per cow than do those not on test. (Table 3) On the other hand, the farmers on test in the two areas have an average production rate which is very

similar with only a slightly higher average in the high producing area. (Table 3) However, with a larger proportion of the

Table 3

Average Production Per Cow of Those Farmers Who Are Members and Not Members in Either the DHIC or Owner Sampler Milk Testing Programs

Membership in a milk testing program	Production per cow			
	Sociometric area		Similar characteristics area	
	N	Milk/cow	N	Milk/cow
Testing	23	11,000	12	10,900
Not testing	10	8,900	21	7,800
Area average for all farms		10,400		8,900

farmers on test in the high production area, it may possibly be more difficult to achieve a high average production for the wider range of farmers included than if a relatively few and, therefore, more select group, were on test as in the low producing area.

The major contributing factor to the higher average in the sociometric area is the higher proportion of farmers on test who therefore have higher production per cow.

It is also true that farmers not on test in the high producing area have higher average production than do those in the low producing area. With so few farms (10) not on test in the sociometric area, it is not possible to statistically analyze

why this occurs. However, it seems logical that those on test in the area where a large proportion of the farmers are on test might influence those not on test more than they would in the area where a much smaller proportion are testing.

It might be hypothesized that the higher social participation in the high producing area is the major factor related to the difference in number of farmers testing and the resulting higher production in that area. This would mean that those who are higher social participators are more apt to be members in DHIC or owner sampler and, therefore, more have joined in the one area than the other. To test this hypothesis social participation has been related to membership in DHIC or owner sampler in both areas.

Table 4

Association of Social Participation Score with Membership in DHIC or Owner Sampler Programs by Area

Social participation score	Percentage in DHIC or Owner Sampler Program			
	Sociometric area		Similar characteristics area	
	No.	Percent	No.	Percent
Less than 21	11	64	18	17
21 - 30	4	50	8	38
31 - 40	13	77	1	0
40+	5	60	6	100
Total	33	67	33	36

There is no tendency for high social participation to be associated with membership in a testing program in the sociometric area where 67 percent of the farmers are testing. In contrast, there does tend to be an association between participation and testing in the similar characteristics area where only 36 percent of the operators are testing. (Table 4)

The question now arises as to why participation tends to be associated with testing in the one area and not in the other. Certainly the hypothesis that the higher social participation in the sociometric groups area explains the high number of farmers on test has to be rejected since it is in that area where we find that those with low participation are testing in about the same percentage as are those with high participation records. The question now is whether there is an intervening variable present in the sociometric area but not in the similar characteristics area. Difference in quality of testing supervisors for the two areas is a possible explanation and the only one which seems plausible. A rating of the supervisors in the two areas was given by officials in two different agencies best able to judge quality of supervisors. Table 5 presents the rating of the testers and other related data.

The supervisors rated as good have a much higher proportion of those in their area on test, and the average milk produced per cow is also slightly higher for the herds tested by the supervisors rated as good. Supervisor F for all practical purposes can be ignored since he is only responsible for a small

Table 5

Ratings of Supervisors Involved in Each Area
with Number of Herds Tested and
Average Production per Cow for Each Supervisor

	Sociometric area		Similar characteristics area	
Type Data	Supervisor R	Supervisor C	Supervisor P	Supervisor F*
No. of farms in management program	33		33	
No. of farms tested by each tester	10	13	9	3
Rating of supervisor	good	good+	fair	good
Average milk per cow of herds tested	11,000	11,100	10,400	12,300

* This supervisor has only a small portion of this area as a part of the area for which he is responsible and is also limiting the number of farms he tests since he now does this only as a part of his retirement activities.

part of the area involved in this study and has only a few farms which he services. The data and analysis support the hypothesis that the major cause for higher production per cow in the sociometric area in the benchmark year of 1962 was the current and historical difference in quality of supervisors in the two areas.

Summary and Implications

The farms and the operators in the two areas are well matched in the benchmark year of 1962 except for three factors. The sociometric area has operators with herds producing more milk per cow,

and thus higher gross income per farm as well as higher social participation scores. The herds are producing more milk in the one area than in the other because more of the herds in that area are either on DHIC or owner sampler programs. In both areas herds on testing programs compared to those not on them produce more milk per cow. The difference between the two areas in proportion of farms on test programs is not associated with the difference in social participation but is associated with the difference in quality of DHIC and owner sampler supervisors who are working in these areas. Supervisors who function as teachers as well as testers apparently obtain a larger proportion of the farmers in a given area as their clients. These quality supervisors were also able to help their clients obtain herd averages which as a whole surpassed those of the possibly more select herds tested by the supervisor rated as fair.

From the point of view of the research, the major exception to a good match of areas is milk produced per cow and this difference was apparently caused by the historical difference in quality of DHIC and owner sampler program supervisors. In future matching of dairy areas, consideration should be given to matching quality and quantity of programs conducted by other agencies such as DHIC, as well as Extension membership and participation.

In this project conclusions concerning changes in milk production per cow and in incomes attributable to such production differences will have to be interpreted with full recognition given to this difference which existed when the experiment was started.

Program Objectives, Subject Matter, and Activities For the First Three Years

Recruitment, Fall, 1961

The major objective in the fall of 1961 was to recruit families and to form study groups using the two alternative methods. The method of recruitment was a personal visit by the farm management agent at which time the program was explained, interest in the program determined, and information needed for forming study groups obtained. A letter to each prospective participant preceded this personal visit.[1]

A summary of the explanation which the agent gave of the program follows:

> The program is of three years duration. During this period we help each family study their farm business using financial and production records. Strong and weak points are located, and we will help you discover and analyze alternative adjustments which can be made in your business organization and management. Most dairymen find it possible to increase their net income by this method. Our experience with this program with about 150 families in Otsego County since 1955 has been gratifying. The present effort to involve all operators in several townships represents a marked expansion in this work. Three to

---

[1] A copy of this letter is included in Appendix A.

four meetings will be held each January and February with the small groups to be organized in each of the townships. In addition we will visit each farm to provide help in studying various management problems.

This description of program was followed by an explanation of the method which would be used to form study groups in their area.

After the information for forming groups was analyzed, a letter was sent to each family giving the weeks in which the first three meetings would be held and outlining the content of each meeting. They were also told who would be members of their group and were reminded of the method used is assigning persons to groups. A return card was enclosed for indicating days of the week and hours when they preferred to meet.

Program Objectives, Subject Matter, and Activities for the First Year, 1962.

The objectives for the first year's program meetings and individual farm visits were:

1. Explain and clarify the farm management program and what it will do for those participating.
2. Motivate the participants to keep records by demonstrating the benefits from doing so.
3. Teach record keeping and its importance to farm management.
4. Have all participants complete a farm inventory and keep a farm account book including expenses, receipts,

and production records.

To fulfill these objectives, lesson plans and materials were prepared. At the beginning of each meeting the participants were given a copy of the lesson plan and material for that meeting. Included in each lesson plan were assignments for "homework"[1] in preparation for the next meeting.

The first topic considered in Lesson I was the subject of, "Why is business management important?" This question was answered by illustrating that capital requirements were increasing and that for this and other related reasons, income requirements were also higher. It was also pointed out that well managed dairy businesses return good net incomes and returns on capital invested and that better than average incomes require better than average management.

The next section in Lesson I was devoted to explaining the management program and what it could do for the participants. This was done by explaining business analysis and how to prepare for such an analysis. The progress of a specific farm involved in business analysis was described in terms of business factors such as size, rates of production and cost control. A brief description of the program was then given for each year of the three-year program.

The remainder of the first meeting was devoted to emphasizing the value and use of the farm inventory record and to explaining and illustrating how to enter the various items included in

---

[1] Homework usually consisted of writing down certain information on their farm business which was to be used in the next meeting.

the farm inventory.

In keeping with the first year's objectives, Lesson I placed major emphasis on explaining the program and its benefits and on motivating the participants. Secondary emphasis of this lesson was upon teaching record keeping.

Lesson II focused upon teaching record keeping and completion of the first farm inventory. The importance of recognizing depreciation in keeping the inventory was discussed. How to keep the farm account book of expenses, receipts and production was discussed and illustrated. The use of this information in business analysis by comparison to a standard was explained.

In Lesson III the participants were assisted in doing a limited analysis of their past year's business. This was done to demonstrate the usefulness of record analysis and thereby supply additional motivation for keeping the necessary records. Additional work was done as needed to complete the inventories and bring the farm account books up to date.

The farm business analysis summary for the farm management participants in the previous year was explained and a summary of the significant management principles and business factors affecting profits were noted.

The agent also reviewed plans for farm visits during the rest of the year, record check-in and summaries at the end of the year, and the first complete business analysis to be made in the second year's meetings.

Finally an explanation was made of the interest of the College of Agriculture in these small study groups. It was felt that an explanation was necessary to help clarify the presence of the observer (Extension Studies Specialist) at each meeting and also to prepare the participants for the more extensive data collection interview to be made later in the year. In this explanation, as in earlier explanations, the college extension specialist's role was identified as that of an observer who would record what was happening and assist in obtaining college resources for helping the agent conduct the program. Data collection was identified as information which would help in planning program as well as acquainting the agent and observer with each farm situation and that both uses of the data would help in presenting a program more suited to their needs.

Summary

The lessons of these first year's meetings concentrated on activities which would define the management program and the rewards it could bring as well as on teaching participants the importance of records by demonstrating their use in business analysis. The primary purpose of this was to motivate the participants to keep records and assure that they completed an inventory and farm account book. Most activities were designed to assist in accomplishing several of the first-year objectives although the major emphasis of each activity was identified more with one or two of the objectives than with all of them.

Change in Program Agent

In December, 1962, the end of the first year, the program agent left the Extension Service to accept employment with one of the major feed companies. It was not possible to immediately fill the position. Since this was the time of year for farm records to be completed, checked in and processed for record analysis, someone had to follow through on getting records in or have the program and research project suffer both in quality and also, perhaps, in quantity as a greater number of participant dropouts might occur. The two remaining county agents assisted a great deal by taking time from their schedules to check in records at meetings arranged for that purpose. However, there were a number of participants who were not prepared to turn in records at the time of these meetings. Since the county agents did not have time for individual visits to obtain these records, the Extension Studies Specialist followed through during the months of December, 1962, and January, 1963, to assure that as many records as possible would be in for benchmark record analysis. In spite of the fact that most participants had received a good start on record keeping, the experience in checking in the records at the end of this first year indicates that the job of educating participants for record keeping must be conceived as one which continues throughout the first year until the records are checked in. The amount of assistance needed varies greatly from individual to individual. The specialist found that in educating participants in the "why" of record keeping and analysis

as well as the "how" that an approach in attitudes and "ways of thinking" was being developed which is a basic foundation for understanding future instruction in farm management. Much of the value of the first year's meetings was in teaching these basic attitudes and future individual visits often involved such teaching. Participants vary widely on how soon they achieve the "correct" point of view. For some, one set of meetings is adequate, others may still be "lacking understanding" at the end of two or three years of instruction.

Program Objectives, Subject Matter, and Activities for the Second Year, 1963

At the beginning of February, 1963, the new program agent began work in the county. After the new agent had made some revisions and additions to the lesson units prepared by the previous agent,[1] the second year meetings were begun.

The objectives for this second year were:

1. To bring the participants to a better understanding of effective farm management and how this relates to the general economy in which they operate.

2. To teach farm business analysis by the use of major business factors obtained by processing the farm records.

3. To teach the proper use of credit in farm financing and business management.

4. To teach the importance of cost control as a part of management in the owning and operating of machinery and equipment on dairy farms.

5. To start the participants thinking about what business weaknesses were limiting their incomes and what they needed to do to achieve their immediate and long range

---

[1] With assistance from several college specialists.

family and farm goals.

As in the first year, each participant received a copy of each lesson unit at the beginning of each of three meetings.

In the first meeting the agent briefly reviewed the economic situation in which they had operated over the past year. This was done in terms of prices paid and received by farmers. Since 1962 was a drought crop year, the feed situation was also discussed. These factors were related to the farm management process.

The next section was a discussion of farm management as a decision-making process.

Attention was then directed to business analysis. Each participant family was given a work book in which its own business factors had been entered. The major variables included were volume of business, labor efficiency, rates of production, and cost control. For each of these variables from three to five factors were included. The participants were then able to compare their businesses relative to state averages for the best 10 percent of the farms down to those for the lowest 10 percent of all farm management cooperators in New York State. Each participant family was asked to check whether its farm was average or above or below average on each of the major factors analyzed. Each family did this analysis in the privacy of its own work book.

The last topic discussed in the first meeting was the common uses of credit on the average dairy farm. Each participant

family was asked to bring certain credit and farm business figures to the second meeting. Assurance was given that these figures would be treated confidentially.

At the second meeting participants were helped to analyze their own credit position by calculating credit and equity factors such as percent equity, short and long term debt per cow, net worth, and percent of milk check to pay interest and principle on debts.

The second topic was the cost of owning and operating machinery. Guidelines were given for consideration of whether a particular farmer should purchase a piece of machinery. Examples of common uneconomical machine ownership were given. The cost of operating machines was then discussed in detail. The relationship of fixed and variable costs were explained in relation to amount of time particular machines are used.

Guidelines were given for determining whether the ownership of particular machines would be efficient and economical. Tables and charts were furnished giving average costs of machines used on most New York dairy farms.

As a final activity of the second meeting the participants were asked to check on an analysis sheet whether certain of their business factors were average or above or below average.

At the third meeting the agent discussed the topic of, "What is management?" He then considered how to locate and analyze income-limiting factors. An example of how to budget farm changes was given. A check list for dairy herd management was explained,

and participants were encouraged to identify their major farm and family goals. The last matter discussed was the summaries for farm management farms in each of the two areas included in the study.

During the spring and summer months of 1963 the time given the farm management program involved making farm visits, organizing and conducting a farm tour in a nearby county,[1] and planning for and producing the lesson units for the third set of meetings to be held in the winter of 1964. A part of the reason for farm visits during this period was to allow the participants to become better acquainted with the new agent and vice versa and to follow through in assisting with any farm management problems the participants were interested in. One of the unfortunate consequences of a change in teachers in an intensive program is the repeated expenditure of time for mutual acquaintance and rapport of the new agent and the participants in order that a working relationship can be established.[2]

---

[1] The tour to a farm in another county was well planned and executed to give the participants an illustration of farm business analysis and what can be done in correcting weaknesses after they are discovered. Unfortunately, only a small percent of the participants attended the event.

[2] Although hardly a normal input in a program, the Extension Studies Specialist in his role of assisting in program planning and execution for the experiment helped to make the transition to a new agent easier and more expeditious because he was a continuing known acquaintance for the participants and for the agent, a source of knowledge about the participants and their farms.

Summary

The second year's objectives, subject matter, and activities were designed to teach: (1) the use of business analysis in farm management, (2) the use of credit as a sound part of management, and (3) the importance of the efficient use of machinery as a part of effective farm management. All of these were related to the analysis of the individual family's farm business and the strong and weak points which were identified.

Throughout the teaching process the attempt was made to teach both the principles or generalizations as well as the application of them to each individual farm situation.

Program Objectives, Subject Matter, and Activities for the Third Year, 1964

The third year of the program was considered a crucial one for most farms in deciding what, if any, adjustments were needed in the farm business. Two years of business analysis were available and most participants needed to take a rational approach in thinking about how to operate their farm businesses. The following objectives guided program development and execution:

1. To continue to teach the uses of business analysis in farm management.

2. To summarize the results of two years' business analysis and pin point the major strengths and weaknesses of the business.

3. To help the farmer begin planning for adjusting his business by correcting the weaknesses which he and the agent have found in analysis of his business.

4. To teach the importance of good forage production in operating a profitable dairy farm.

5. To help each participant analyze the current production and potential production of his farm.

6. To help each participant formulate a plan for meeting his forage needs by planning and budgeting a cropping rotation plan for each field.

The first meeting of 1964 used the record summaries of each business to teach the uses of business analysis in farm management by locating the strong and weak points in a farm business and then illustrating how to use the record summaries as a basis for planning changes and adjustments in the management. As in previous years, the analysis included factors for the major variables of production rates, labor efficiency, size of business, cost control and financial management. Each family was also asked to compare the position of its business in 1962 with that of 1963 on each of these major variables. From this comparison their progress, if any, in the past two years could be determined. The last part of the first meeting was used to introduce the importance of forage and feed production on Otsego County farms.

The second meeting started with a description of the characteristics and production potentials and limitations of the soils found in the area in which the participants are farming.

The agent discussed what the college was recommending for quality and quantity of hay in feeding dairy cows. The participants were helped in calculating the amount of forages they should have to feed their herd through the current feeding season. After this, each participant calculated what his roughage supply actually would be and also the potential of his fields for producing hay and silage.

In the third meeting the agent gave the average hay and corn silage yields for the top 10 percent, the average, and bottom 10 percent of farm management cooperators in New York State and in Otsego County. These figures provided a standard against which the participants could compare their own rates of forage production. These comparisons enabled them to see what progress could reasonably be expected relative to their current position. Each participant family was then asked to develop a cropping program for its farm which would be adequate. This program included rotation of crops, kind and variety of crops, fertilization program, and insect and weed control practices to be followed. These crop plans were then budgeted for the year of 1964. Charts were provided which gave estimated prices for seed, fertilizer, lime, spray materials and so forth. The cost and value of yields returned from an experiment in the application of different amounts of fertilizer to different plots of the same type of hay seeding were used to illustrate the profitableness of fertilization. The findings of the same experiment were also used to illustrate the principle of diminishing returns and the relationship of costs and prices received in determining the level at which additional inputs will return a profit.

The third meeting ended with a discussion of the 1963 farm business summary for all farms in the township areas.

Individual farm visits were planned for the summer of 1964 so that the agent could give his analysis of their business summary and point out what he believed to be the strengths and weaknesses

of the farm business. On these visits the agent worked with participants in planning adjustments in their business to correct the major weakness or weaknesses.

Summary

The third year's meetings were designed to confirm the weak and strong points of each business by summarizing the results of record analysis for the first two years. The lessons on forage production were designed to establish the quantity and quality of forages needed to achieve the highest possible milk production and to teach the operator how to plan and budget a cropping program which would provide the forages needed. The forage lessons were designed to teach the economic advantages of producing and feeding large amounts of high quality forages and then help the participants to formulate plans for achieving these goals on their farms.

Response to Program

Response to the program is measured by attendance at meetings, number of persons dropping out of the program, number of persons failing to meet program requirements, and number of requests made of the farm management agent.

Attendance at Meetings

One method of summarizing and comparing attendance records is by percentage of operators who attended all, some, and none of the meetings held for program participants. Around 80 percent of the farms in the sociometric groups were represented at some or all of the meetings held in 1962, 1963, and 1964. In contrast, there were only about 60 to 65 percent of the farms in the similar characteristics groups represented in some or all meetings held in 1962 and 1963; and in 1964 this percentage dropped to 55 percent. Or, expressed as the percentage of farms which were never represented at meetings, the similar characteristics groups ranged from 35 to 45 percent of the farms never represented, while the sociometric groups' nonattendance farms ranged from only 17 to 22 percent over the same three-year period.

The county groups' representation of farms at some or all meetings was comparable to the sociometric groups' in 1962, dropped to about the same as that of the similar characteristics groups in 1963 and then was higher than either of the other two types of groups in 1964. However, most of the county groups' attendance in the years of 1962 and 1963 was in the "attended

Table 7

Percentage of Farms Represented at All, Some, or None of the 1962, 1963 and 1964 Meetings Held for the Sociometric, Similar Characteristics and County Type Groups

Degree of Attendance	Type of Group		
	Sociometric Groups	Similar Characteristics Groups	County Group
	1962		
All meetings	55	50	12
Some meetings	27	15	70
No meetings	18	35	18
	(N=45)	(N=46)	(N=17)
	1963		
All meetings	53	46	0
Some meetings	30	16	65
No meetings	17	38	35
	(N=36)	(N=37)	(N=17)
	1964		
All meetings	64	42	58
Some meetings	14	13	42
No meetings	22	45	0
	(N=36)	(N=31)	(N=12)

some meetings" category with very few (1962) or no operators (1963) attending all meetings. Even in 1964, the county groups' best year for attendance, there was a lower percentage who attended all meetings than was true for the sociometric groups. On the other hand, all operators in the county group in 1964 attended some or all the meetings, while 22 and 45 percent,

respectively, in the sociometric and similar characteristics groups did not attend any meetings. There are differences in the structure and programming for the county group and the other two types which make comparisons questionable. Only two meetings were held for the county group in 1963 and 1964 while, with but one exception, there were three meetings held per year for each of the other groups. The county group is composed of a more "select" group of farmers than the other two types of groups. More stress is placed on teaching of subject matter beyond analysis of the farm business in the sociometric and similar characteristics types of groups than in the county group.

Another method of summarizing and testing differences in attendance is by proportion of actual attendance to total possible attendance. On this basis, the sociometric groups attained higher attendance in all years than did the similar characteristics groups. These differences were statistically significant in 1962 and 1964, and the probability level was relatively high in 1963, although it did not reach the .05 level chosen for significance. The difference in attendances in the small sociometric and similar characteristics groups and the one county group are statistically significant for all but two of the nine tests made. (Table 8)

Comparing the three-year record for meeting attendance of the different types of groups the sociometric groups rank first, the similar characteristics groups,second, and the county group, third. When the differences between proportions of actual

attendance of the three types of groups are tested for significance, all but two of the nine probability levels were significant. These tests for significance give us confidence that the attendance differences are not chance differences. The question of why the differences occurred will be discussed in a later section.

Table 8

Proportion of Total Possible Attendance for Each Type Group in 1962, 1963, and 1964 with Test of Differences by Type of Group

	Proportion of Total Possible Attendance		
Year	Sociometric (7 groups)	Similar Characteristics (6 groups)	County (1 group)
1962	70	56	47
1963	64	54	32
1964	70	49	79

Test of Differences*

	Year		
Groups Compared	1962	1963	1964
Sociometric vs. Similar Characteristics	S (.009)	NS (.07)	S (.001)
Sociometric vs. County	S (.002)	S (.001)	NS (.20)
Similar Characteristics vs. County	NS (.15)	S (.01)	S (.005)

* Test of hypothesis that the two proportions are equal. Significance level chosen as P = .05 or less with a one tail test. Walker and Lev, Statistical Inference, Holt, Rinehart and Winston, New York, 1953, pp. 77-79.

Program Dropouts

In the first year of the program, 13 farms dropped from the program in each of the areas. During the second year (1963) up to the time the third set of meetings began, there were no more dropouts from the sociometric groups, but four dropouts from the similar characteristics groups. Thus, at the end of the second year the attrition in the sociometric groups left a total of 36 participants and that in the similar characteristics groups, 31 participants.

Most dropouts were voluntary but two of the sociometric and three of the similar characteristics groups dropouts were involuntary. Reasons for involuntary dropouts were death of the operator, burned out, or sold farm.

Subtracting involuntary dropouts leaves voluntary dropouts in the sociometric groups at 11 and in the similar characteristics groups at 14 or as a percentage, voluntary dropouts 22% in the sociometric groups and 29% in the similar characteristics groups.

Failure to Meet Program Expectations

In the sociometric groups there were seven operators, and in the similar characteristics groups 10 operators, with low or no response to the program. In some of these cases they failed to complete farm records for summary in one or both years, but in others their response was low in terms of interest in program activities and in use of the records for analysis of their business.

Number of Requests Made for Assistance

In the sociometric groups the operators made a total of 81 requests and in the similar characteristics groups a total of 77. This gives a difference of only four requests made for assistance. Type of requests ranged from such topics as weed control, and how to record items of expense in the farm record book, to farm business arrangements and how to calculate profits on high producing cows. It is estimated that 75 percent of the requests were made of the agent when he was visiting farms on scheduled visits. Thus, farmers in neither type of group will tend to call or write the agent for assistance in spite of the fact that they have been encouraged to do so. This refutes any argument that an intensive educational program can be conducted on the basis of the clients asking for the assistance they need. The response in this program indicates that requests for assistance must be stimulated or suggested by the program agent in a majority of cases.

Analysis of Differences in Response to Program

Differences in response as defined by attendance at meetings and program dropouts could most logically be attributed to some basic difference in the operators, or the situation in the two areas, or to the difference in the way the groups were formed in the two areas.

We know from the analysis above that there is a difference in attendance according to which type of group was organized for the participants. The question we wish to answer is whether we can account for the differences in attendance by some variable or set of variables other than the way the groups were formed.

Having become familiar with the two areas it becomes obvious that participants in the sociometric area are involved in what appears to be a somewhat more cohesive "community". Each area has a part or all of two or more "communities" in the area. However, in the sociometric area the village centers of the two major "communities" are within the area. In contrast in the other area there is no major trading, school, or social center in the immediate area.

What effect such a difference in social cohesiveness might have on attendance at meetings, if any, can only be determined by relating the degree to which each individual shares in the area social cohesiveness to their average attendance.

The only major difference in personal and social characteristics tested was the difference in social participation scores.

It can be argued that we might expect those with high participation scores to be good attenders in the management program and vise versa.

If degree of formal social participation affects attendance at farm management program meetings we could expect a correlation between formal social participation score and attendance for both the areas. If such an association does not exist, the difference in average social participation between the two areas does not explain the differences in average attendance.[1]

There is no association between formal participation and attendance. Table 9 data indicate no association and a rho coefficient of correlation was only .35 for the sociometric area and only .05 for the similar characteristics area.

Table 9

Formal Social Participation Related to Attendance at Meetings

	Sociometric Area		Similar Characteristics Area	
Participation	N (33)	Average Attendance	N (33)	Average Attendance
10 - 20	10	2.1	18	2.1
22 - 30	5	2.5	8	1.5
31 - 40	11	2.2	1	2.7*
41+	7	2.6	6	1.9

* This is not an average and is meaningless since it is only one case.

[1] Average attendance is average attendance per year for the first three years with the highest possible average being three since that was the number of meetings held per year.

Therefore, we reject the hypothesis that high social participation leads to high attendance of farm management group meetings when the groups are formed by either of these two methods.

When the project was started it was deemed important that the choices of the operators for others should be known in the similar characteristics area as well as the sociometric area.[1] This was considered essential because in a relatively small area (two townships) even though the groups were formed on the basis of similar characteristics some operators would be placed with some persons whom they would have chosen to be with had the groups been formed sociometrically. This did occur and the extent of it compared to the sociometric area is given in Table 10.

---

[1] These choices for others were obtained after the groups had already been formed by the similar characteristics method. It is believed that this after-the-fact choosing was done with less motivation than if the groups were to be formed from the choices. This lower motivation, it is believed, could have resulted in fewer total choices made so that choices tended to be limited even more than usual to those most desired as group companions.

Table 10

Choice Relationship Score* of Operators
In the Sociometric and Similar Characteristics Groups

Choice Relationship Score	Number of Operators	
	Sociometric Groups	Similar Characteristics Groups
0 - 19	3	19
20 - 39	8	16
40 - 59	11	9
60 - 79	13	2
80+	10	0
	(N=45)	(N=46)

* Score is obtained by combining an individual's choices of others in his group with those by them for him. The final form of the score is percentage of total possible if the individual had chosen all others in his group and they in turn had all chosen him.

Since the sociometric groups were formed by placing individuals in the group where they would obtain the highest score they could attain, the sociometric groups have relatively few operators with low scores while in contrast the similar characteristics groups have most operators in the low score categories. When the choice relationship score is related to attendance in both types of groups the coefficient of correlation is only .13 for the sociometric groups and only .37 for the similar

characteristics groups.[1] Inspection of the data indicated that there was some tendency for attendance to be high in the sociometric groups after choice relationship reached a certain minimal level and that thereafter additional increments in choice relationship score did not appreciably affect attendance. This same relationship seemed to exist for the similar characteristics groups also. Further thought on this phenomena resulted in formulation of another hypothesis. It was reasoned that perhaps any individual who had one or more or perhaps two or three or more mutual choices with persons placed in his group would be inclined

[1] Choice relationship score is also associated (negatively) with program dropouts.

Number of Dropouts According to Choice Relationship Score of Dropouts from the Sociometric and Similar Characteristics Groups

Choice Relationship Score	Sociometric Groups 1962 N*	Dropouts	Similar Characteristics Groups 1962 N*	Dropouts
0 - 19	3	2	19	9
20 - 39	8	5	16	4
40 - 59	11	1	9	1
60 - 79	13	1	2	1
80+	10	0	0	0
Totals	45	9	46	15

* The 1962 N is the number of participants in each choice relationship score category as they existed at the beginning of the 1962 (first) set of meetings. Dropouts are the total dropouts which occurred from that time to the beginning of the third set of meetings in Feb. 1964. Dropouts before the first meetings began in Jan., 1962 are not enumerated here but there were four in the B & M area and two in the B & E area. Total cases in the above table are also reduced by these six pre-first meeting dropouts.

to attend the meetings and any additional mutuals or "one way" choices received from others or given to others would not add appreciably to attendances. Therefore, it was hypothesized that a relatively low number of mutuals with others in the group would assure attendance. To test this hypothesis a rank difference correlation coefficient was used and the data were also arrayed as indicated in Table 11. The rank difference correlation for the sociometric groups was .35 and for the similar characteristics groups .49. These are not high correlations but are higher than the correlations obtained earlier on the association between the choice relationship

Table 11

Association of Number of Mutual Choices With Group Members and Average Attendance

No. of Mutuals	Sociometric Groups: Average Attendance	N
0* - 2	2.1	11
3 - 6	2.4	22
		33

	Similar Characteristics Groups: Average Attendance	N
0	1.5	16
1 - 2	2.1	13
3 - 5	2.7	4
		33

* There was only one person with no mutuals in the sociometric area.

score and attendance. It appears that number of mutuals is a more discriminating measure of belongingness which affects attendance.

Table 11 data indicate that as few as one or two mutuals will tend to lead to high attendance and that three or more mutuals will tend to assure high attendance. This relationship holds for both areas. Since so many fewer operators have two or more mutuals in the similar characteristics area where attendance is low, number of mutuals with other group members appears to explain attendance differences in the two areas relatively well. However, some attention will be given to whether this association can be proven spurious or whether an even higher amount of attendance can be accounted for by combining the possible influence of other variables with that of number of mutual choices. Additional variables will be social participation, social status of individuals, and an index of the degree to which individuals are sharing in the area's social cohesion.[1] As was indicated earlier it is believed that the sociometric area is a somewhat more socially cohesive area than is the similar characteristics area. This difference in area social cohesiveness it is believed is the reason for the areas

---

[1] Social cohesion is indexed for the areas and also for the individual by the total number of choices between all persons in the area. The sociometric area has a higher total number of choices between all persons than does the similar characteristics area. Area social cohesion score for each individual was obtained by scoring three for all mutuals with others in the area, two for all additional choices from others and one for each additional choice to others to a maximum of five and then all three of these were summed for the individual's area social cohesion score.

differing in total number of mutuals and one way choices between all persons in the area. There are more such choices in the sociometric area. We argue that the degree to which each individual shares in the social cohesiveness of the area can be indexed by scoring his choices to and from all others in the area. This score differs from the choice relationship score and the number of mutuals with group members by its including choices to and from everyone in the area while the other two variables consider choices and number of mutuals respectively only with those in their study group. The area social cohesiveness score will be used to index the possible influence of the difference in social cohesiveness of the two areas on other variables such as attendance and social participation.

Table 12 presents the correlations between these variables and between them and attendance. None of these are high but number of mutuals with group members and area social cohesiveness score would appear to have considerable influence on attendance. However, since area social cohesiveness and number of mutuals with group members are themselves highly correlated (Table 12), further analysis is required to determine whether both or only one of these variables are influencing attendance. Such an analysis can be made by simultaneously relating the effect of the two variables on attendance (Table 13).

Table 12

Correlation Coefficients for Association
Between Various Variables

Variables Related	Rho Correlation Coefficients	
	Sociometric Area	Similar Characteristics Area
Social participation and attendance	.35*	.05
Social status and attendance	.21	.28
Number of mutuals within group and attendance	.35*	.49*
Area social cohesiveness score and attendance	.37*	.30
Area social cohesiveness score and number of mutuals with groups' members	.75*	.49*
Area social cohesiveness score and social participation	.48*	.41*
Number of mutuals with group members and social participation	.58*	.31*
Number of mutuals with group members and social status	.62*	.37*

* Significantly different from zero at .05 level.

Table 13

Average Attendance in the Sociometric and Similar Characteristics Groups When the Effect of Number of Mutuals With Group Members and Area Social Cohesiveness Are Controlled

Sociometric Area		
No. of Mutuals	Area Social Cohesion	
	Low	High
0* - 2	2.1 (11)**	(0)
3 - 6	2.0 (5)	2.5 (17)

* There was only one case of no mutuals in this area.

Similar Characteristics Area		
No. of Mutuals	Area Social Cohesion	
	Low	High
0	1.4 (10)**	1.6 (6)
1 - 5	2.3 (6)	2.2 (11)

** Numbers within parentheses are number of cases in that cell for which attendance was averaged.

In the sociometric area all average attendances are relatively high but it would appear that area social cohesion could have some effect on attendances but because of the way the groups

were formed there are no cases in the cell for relating low mutuals to high area social cohesion, and therefore the results are inconclusive. The section of the Table for the similar characteristics area would indicate that no mutuals will lead to low attendance irrespective of level of area social cohesiveness and that one or more mutuals will lead to high attendance irrespective of level of area social cohesiveness. (Table 13) Area social cohesiveness does not affect attendance unless this is expressed for the individuals by their being grouped with persons with whom they have one or more mutual choices. What they might say if they were able to verbalize this relationship might be as follows: "Give me one or more of my buddies in the group with which I'm to meet and I'll attend as much as I possibly can."

The combined effects of social participation and number of mutuals with group members is explored in Table 14. Attendance in the sociometric area remains high for all cells irrespective of level of social participation. The cell for relating high social participation and low number of mutuals is lacking cases because of the correlation between social participation and number of mutuals (Table 12) and the fact that the sociometric technique places persons on the basis of maximizing number of mutuals between group members.

Table 14

Average Attendance in the Sociometric and Similar Characteristics Groups When the Effect of Number of Mutuals With Group Members and Social Participation Are Controlled

Sociometric Groups		
No. of Mutuals	Social Participation	
	Low	High
0 - 2	2.2 (9)	1.6* (2)
3 - 6	2.3 (6)	2.5 (16)

Similar Characteristics Groups		
No. of Mutuals	Social Participation	
	Low	High
0	2.0 (10)	.6 (6)
1 - 5	2.0 (6)	2.3 (11)

* This average attendance considered as unreliable since it is based on only two cases.

The similar characteristics area average attendance is relatively high if number of mutuals are one or more and level of social participation does not appear to affect attendance appreciably if one or more mutuals exist. However, with no mutuals, high social participation would appear to lead to a

lowering of attendances and low social participation to higher attendance.[1] For our purposes at the present we reject the hypothesis that the higher social participation of operators in the sociometric area could possibly explain their higher attendance at farm management meetings.

Analysis for the combined effects of number of mutuals and social status[2] of the individual on attendance is given in Table 15.

---

[1] Actually what we probably should conclude is that there is likely to be some other characteristic which would account for the difference in attendances and that therefore participation is simply not strongly related to attendances in either a positive or negative direction.

[2] Social status is indexed by summing the individual's score assigned for level of education, (scores from 0 to 5 as education increased) social participation (participation of 0 = 0, of 1 - 10 = 1, of 11 - 20 = 2, etc.) and leadership score based on number of times selected by others for leadership functions (all of leadership score, except over 10 scored as 10).

Table 15

Average Attendance in the Sociometric and Similar Characteristics Groups When Effect of Number of Mutuals With Group Members and Social Status Are Controlled

Sociometric Area

No. of Mutuals	Social Status: Low	Social Status: High
0* - 2	2.0 (9)	--2.5-- ** (2)
3 - 6	2.3 (7)	2.5 (15)

* There was only one case of no mutuals in this area.

** Two few cases for reliable average attendance.

Similar Characteristics Area

No. of Mutuals	Social Status: Low	Social Status: High
0	1.5 (11)	1.3 (5)
1 - 5	2.0 (9)	2.5 (8)

It appears that social status may have some effect on attendance but is not sufficient to obtain high attendance which is illustrated best by those operators with no mutuals in the similar characteristic area. Where there are no mutuals, attendance is low irrespective of social status level. With one or more mutuals high social status appears to enhance the probability that attendance will occur.

Summary and Conclusions

The major differences between the two areas were in the way the groups were formed, in social cohesion of the areas, and in social participation.

Number of mutuals individuals had with other members in their group is the variable which best indexes the difference in the way the groups were formed. There are a relatively large number of persons in the similar characteristics area with no mutuals with other group members and only one such person in the sociometric area. When number of mutual choices is related to attendance it is found that only one mutual appears to assure relatively high attendance in both areas and that three or more mutuals tend to guarantee high attendance. For those with no mutuals a low average attendance results.

Since other variables were highly correlated with number of mutuals it was felt that further analysis was necessary to determine whether the relationship between number of mutuals and attendance was real or spurious. Other variables used were

area social cohesion and social participation. Analysis was made for the combined effect of number of mutuals and that of social participation, area social cohesion and social status. These analyses ruled out the possibility of either social participation, area social cohesion, or social status being sufficient to produce high attendance in the absence of one or more mutuals.

A mutual choice relationship with one or more group members was the only variable which was sufficient to produce high attendance. At least one mutual also appears to take on some characteristics of being necessary in that when there were no mutuals present low average attendance was the result.

APPENDIX A

Appendix A-1 Letter sent to all prospective participants by the program agent

OTSEGO COUNTY EXTENSION SERVICE

August 23, 1961

Dear Mr. _____

The Agricultural Department Executive Committee has selected your area of the county for intensive work in farm management for the next three years.

During the previous six years about 150 families have participated in the County wide Farm Management program. Some of these families are located in your community. The program has helped the participating families make more profit from the dairy business.

I will visit your farm in late August or September. About forty minutes will be required to explain the program, complete a short survey and answer your questions. The survey will give you the opportunity to indicate the families with which you would like to meet during the winter months.*

I will look forward to seeing you soon.

Sincerely,

* This last sentence was not used in the similar characteristics groups area.

Appendix A-2

Number of Operators to Whom Program Was Explained
and Number and Percent Who Were Interested
By Towns Surveyed

Towns by type of groups formed	No. who had program explained	Expressed interest No.	%
Similar Characteristics Groups Area			
Burlington	45	24	53
Exeter (& portion of Plainfield)	33	24	73
TOTAL for area	78	48	62
Sociometric Groups Area			
Butternuts	52	36	69
Morris	25	13	52
TOTAL for area	77	49	64

APPENDIX B

Table 1

Test of Differences on Personal and Social Characteristics
Of the Operators for the Three Areas
And Types of Groups Formed

Personal and Social Characteristics Of the Operator	Sociometric Groups Area		Similar Characteristics Groups Area	County Group
Age				
M	38		41	
Range	22-65		24-60	
N	33		33	
t		-1.22		
S or NS		NS		
Education--yrs. of school completed	%		%	
0 thru 8	21		18	
9 thru 11	12		31	
12th	49		27	
1st yr. college thru 2nd yr. grad	18		24	
TOTAL	100		100	
	N=33		N=33	
X^2 -- NS (P = .20)				
Social participation score				
M	31		21	21
Range	9-59		4-49	9-37
N	36		33	17
t		2.91		
S or NS		S		
Extension participation score				
M	4		4	4
Range	1-7		0-8	2-6
N	36		33	17
t		1.31		
S or NS		NS		

Table 1 (cont'd)

Test of Differences on Personal and Social Characteristics
Of the Operators for the Three Areas
And Types of Groups Formed

Personal and Social Characteristics Of the Operator	Sociometric Groups Area	Similar Characteristics Groups Area	County Group
Personality flexibility			
M	22	23	
Range	14-31	8-33	
N	32	33	
t	-.82		
S or NS	NS		
Social status			
M	8.6	6.8	
Range	1-19	1-17	
N	33	33	
t	1.64		
S or NS	NS		
Record keeping:			
Keep cash account book or equivalent	%	%	
Yes	73	67	
No	27	33	
TOTAL	100	100	
	(N=44)	(N=46)	
X^2-- NS (P = .70)			
Keep farm inventory			
Yes	27	26	
No	73	74	
TOTAL	100	100	
	(N=44)	(N=46)	
X^2 -- NS (P = .90)			

Table 2

Test of Differences on Farm Business Variables
For the Three Areas and Types of Groups Formed

Farm Business Variables	Sociometric Groups Area		Similar Characteristics Groups Area	County Group
Size of farm variables:				
No. cows/farm				
M	36		35	40
Range	16-66		15-80	19-73
N	33		33	17
t		.19		
S or NS		NS		
Man equivalent				
M	1.69		1.65	1.9
Range	1.0-2.5		1.0-3.0	1.0-3.7
N	33		33	17
t		.33		
S or NS		NS		
Machine inventory				
M	10,300		8,600	11,500
Range	3200-19700		2100-21600	2900-19700
N	33		33	17
t		1.50		
S or NS		NS		
Av. farm inventory				
M	46,300		41,800	59,100
Range	10900-110000		21300-98300	20400-98500
N	33		33	17
t		.87		
S or NS		NS		
No. crop acres				
M	84		73	104
Range	38-183		38-130	39-230
N	33		33	17
t		1.56		
S or NS		NS		

Table 2 (cont'd)

Test of Differences on Farm Business Variables
For the Three Areas and Types of Groups Formed

Farm Business Variables	Sociometric Groups Area		Similar Characteristics Groups Area	County Group
Size of farm variables:				
Hay acres				
M	62		54	78
Range	16-171		22-111	21-200
N	33		33	17
t		1.38		
S or NS		NS		
No. cows/farm				
M	36		35	40
Range	16-66		15-80	19-73
N	33		33	17
t		.19		
S or NS		NS		
Man equivalent				
M	1.69		1.65	1.9
Range	1.0-2.5		1.0-3.0	1.0-3.7
N	33		33	17
t		.33		
S or NS		NS		
Machine inventory				
M	10,300		8,600	11,500
Range	3200-19700		2100-21600	2900-19700
N	33		33	17
t		1.50		
S or NS		NS		
Av. farm inventory				
M	46,300		41,800	59,100
Range	10900-110000		21300-98300	20400-98500
N	33		33	17
t		.87		
S or NS		NS		

Table 2 (cont'd)

Test of Differences on Farm Business Variables
For the Three Areas and Types of Groups Formed

Farm Business Variables	Sociometric Groups Area		Similar Characteristics Groups Area	County Group
Size of farm variables:				
No. crop acres				
M	84		73	104
Range	38-183		38-130	39-230
N	33		33	17
t		1.56		
S or NS		NS		
Hay acres				
M	62		54	78
Range	16-171		22-111	21-200
N	33		33	17
t		1.38		
S or NS		NS		
Rates of production:				
Milk sold/cow				
M	10,400		8,900	10,700
Range	5900-14100		4800-14500	8600-13900
N	33		33	17
t		2.79		
S or NS		S		
Hay produced/acre				
M	1.6		1.5	1.7
Range	.6-2.8		.4-3.1	.7-4.5
N	33		33	17
t		1.07		
S or NS		NS		

Table 2 (cont'd)

Test of Differences on Farm Business Variables
For the Three Areas and Types of Groups Formed

Farm Business Variables	Sociometric Groups Area		Similar Characteristics Groups Area	County Group
Labor efficiency:				
Cows/man				
M	21		21	21
Range	12-37		12-31	14-27
N	33		33	17
t		.09		
S or NS		NS		
Milk/man				
M	225,000		190,000	221,000
Range	74000-438000		87000-320000	138000-301000
N	33		33	17
t		1.94		
S or NS		NS		
Cost control:				
% feed of milk receipts				
M	35		33	32
Range	19-53		9-54	18-43
N	33		33	17
t		.82		
S or NS		NS		
Machinery cost/cow				
M	110		100	110
Range	60-200		40-230	60-160
N	33		33	17
t		.11		
S or NS		NS		
Machinery cost/crop acre				
M	48		47	44
Range	21-81		19-92	21-90
N	33		33	17
t		.28		
S or NS		NS		

Table 2 (cont'd)

Test of Differences on Farm Business Variables
For the Three Areas and Types of Groups Formed

Farm Business Variables	Sociometric Groups Area		Similar Characteristics Groups Area	County Group
Machinery cost/cwt. milk				
M	109		118	102
Range	54-211		57-327	46-165
N	33		33	17
t		-.82		
S or NS		NS		
Receipts:				
Work off farm as % of total cash receipts				
M	1.9		1.6	2
Range	0-41		0-19	0-18
N	33		33	17
t		.32		
S or NS		NS		
Milk sales as % of total cash receipts				
M	85		84	83
Range	56-93		64-95	70-89
N	33		33	17
t		.42		
S or Ns		NS		
Receipts:				
Farm receipts				
M	20,600		17,000	24,200
Range	5300-36900		6800-43600	11600-51200
N	33		33	17
t		2.01		
S or NS		S		

Table 2 (cont'd)

Test of Differences on Farm Business Variables
For the Three Areas and Types of Groups Formed

Farm Business Variables	Sociometric Groups Area		Similar Characteristics Groups Area	County Group
Receipts:				
Labor income/operator				
M	2200		1600	1600
Range	4000-6700		5400-6800	2700-5800
N	33		33	17
t		.87		
S or NS		NS		
Price of milk/cwt. (to nearest ¢)				
M	429		427	425
Range	403-471		416-469	408-452
N	33		33	17
t		.65		
S or NS		NS		

ERIC Clearinghouse
APR 3 1968
on Adult Education